Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (original) A method of treating a treatment site in a blood vessel, the method comprising:

providing an apparatus including a first deployable structure and a second deployable structure;

inserting the apparatus into the vessel adjacent the treatment site such that the first deployable structure is disposed adjacent the treatment site, and the second deployable structure is disposed at a location proximal or distal to the treatment site;

introducing a treatment material into the vessel proximate the treatment site;

deploying the second deployable structure within the vessel; and

deploying the first deployable structure adjacent the treatment site to create movement of the treatment material adjacent the treatment site.

2. (original) The method of claim 1, further including repeatedly deploying and un-deploying the first deployable structure adjacent the treatment to create movement of the treatment material adjacent the treatment site.

3. (original) The method of claim 1, wherein the first and second deployable structures each individually comprise a balloon assembly, net assembly, basket assembly, filament assembly, paddle assembly, impeller assembly, or filter assembly.

4. (original) The method of claim 1, wherein the first and second deployable structures each individually comprise a balloon assembly, or filter assembly.

5. (original) The method of claim 1, wherein the treatment material comprises a blood clot dissolving drug.

6. (original) The method of claim 1, wherein the treatment material comprises TpA, urokinase, streptokinase, reteplase, or anistreplase.

7. (original) The method of claim 1, wherein the vessel is a cranial blood vessel, and the treatment site includes a blood clot, and wherein the inserting step includes inserting the apparatus into the cranial vessel and the introducing step includes introducing a blood clot dissolving drug.

8. (original) The method of claim 1, wherein the apparatus comprises a balloon catheter having tubular body, and the first and second deployable structures are inflatable balloon assemblies mounted on the tubular body.

9. (original) The method of claim 8, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein, and the first and second balloon assemblies are mounted on the catheter body, the catheter further including an inner tubular member selectively movable within the lumen of the tubular body adapted to provide selective fluid communication between the lumen and the first and second balloon assemblies.

10. (original) The method of claim 9, wherein the catheter body further includes a port for delivery of treatment material, and the movable member is adapted to provide selective fluid communication between the lumen and the port.

11. (original) The method of claim 1, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein, the catheter including a balloon assembly having an inflatable member having a first portion having a first inflation pressure, and a second portion having a second inflation pressure less than the first

inflation pressure, and the first deployable structure is the first portion of the inflatable member and the second deployable structure is the second portion of the inflatable member.

12. (original) The method of claim 1, wherein the first deployable structure comprises an inflatable balloon assembly and the second deployable structure comprises a filter assembly.

13. (original) The method of claim 1, wherein the first deployable structure comprises a filter assembly and the second deployable structure comprises an inflatable balloon assembly.

14. (original) The method of claim 1, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein and a balloon assembly mounted thereon, the apparatus further comprising an elongated core member including a distal portion having a filter assembly mounted thereon, the core member being slidably disposed within the lumen of the catheter, and wherein the balloon assembly comprises the first deployable structure and the filter assembly comprises the second deployable structure.

15. (original) The method of claim 14, wherein the elongated tubular body of the catheter includes a distal end, and during the insertion of the apparatus into the vessel, the filter assembly is disposed within the lumen of the catheter proximal of the distal end, and to deploy the filter assembly within the vessel, the filter assembly is advanced distally beyond the distal end of the tubular body of the catheter.

16. (original) The method of claim 1, wherein the second deployable structure is deployed at a location proximal to the treatment site.

17. (original) The method of claim 1, wherein the second deployable structure is deployed at a location distal to the treatment site.

18. (original) The method of claim 1, wherein the apparatus further includes a third deployable structure, and wherein inserting the apparatus into the vessel includes disposing the first deployable structure adjacent the treatment site, disposing the second deployable structure at a location proximal to the treatment site, and disposing the third deployable structure at a location distal to the treatment site, and the method further includes deploying the third deployable structure within the vessel.

19. (original) The method of claim 18, wherein the first, second, and third deployable structures each individually comprise a balloon assembly, a net assembly, a basket assembly, a filament assembly, a paddle assembly, an impeller assembly, or a filter assembly.

20. (original) The method of claim 18, wherein the apparatus comprises a balloon catheter, and the first, second, and third deployable structures each comprise an inflatable balloon assembly.

21. (original) The method of claim 18, wherein the apparatus comprises a balloon catheter, and the first and second deployable structures each comprise an inflatable balloon assembly, and the third deployable structure comprises a filter assembly.

22. (original) The method of claim 18 wherein the apparatus comprises a balloon catheter having an inner lumen, and the first and second deployable members comprise deployable balloon assemblies, the apparatus further including a distal protection device including a distal filter member, and wherein the distal filter member comprises the third deployable structure.

23. (original) The method of claim 18, wherein the apparatus is a balloon catheter, and the second deployable structures comprises an inflatable balloon assembly, and the third deployable structure comprises a filter assembly.

24. (original) The method of claim 1, wherein the apparatus further includes a delivery catheter, and the treatment material is introduced into the vessel through the delivery catheter.

25. (withdrawn) A method of treating a treatment site in a blood vessel, the method comprising:

providing an apparatus including a catheter including an elongated tubular body having a body wall defining an outer surface and an inner lumen, the body wall including one or more openings defined therein extending from the lumen to the outer surface, and the apparatus further including an elongated core member disposed within the lumen for selective movement within the lumen, the core member including a fluid moving structure attached thereto;

inserting the apparatus into the vessel adjacent the treatment site such that at least one of the one or more openings is disposed adjacent the treatment site;

selectively moving the core member such that the fluid moving structure extends through the one or more of the opening disposed adjacent the treatment site; and

moving the fluid moving structure to create movement adjacent the treatment site.

26. (withdrawn) The method of claim 25, further comprising introducing a treatment material proximate the treatment site, and the moving the fluid moving structure to create movement adjacent the treatment site includes moving the treatment material adjacent the treatment site.

27. (withdrawn) The method of claim 26, wherein the vessel is a cranial blood vessel, and the treatment site includes a blood clot, and wherein the inserting step includes inserting the apparatus into the cranial vessel and the introducing step includes introducing a blood clot dissolving drug.

28. (withdrawn) The method of claim 25, wherein the fluid moving structure comprises one or more flexible filament attached to the core wire.

29. (withdrawn) The method of claim 25, wherein the fluid moving structure comprises one or more flexible loop of filament attached to the core wire.

30. (withdrawn) The method of claim 25, wherein the fluid moving structure comprises one or more flexible paddle structure attached to the core wire.

31. (withdrawn) The method of claim 254, wherein the fluid moving structure comprises one or more impeller structure attached to the core wire.

32. (withdrawn) The method of claim 25, wherein the catheter further includes a deployable structure disposed thereon, and the method further includes deploying the deployable structure within the vessel.

33. (withdrawn) The method of claim 32, wherein the deployable structure is deployed within the vessel at a point distal of the treatment site.

34. (withdrawn) The method of claim 32, wherein the deployable structure is deployed within the vessel at a point proximal of the treatment site.

35. (withdrawn) The method of claim 32, wherein the deployable structure comprises a balloon assembly.

36. (withdrawn) The method of claim 32, wherein the deployable structure comprises a filter assembly.

37. (withdrawn) The method of claim 32, wherein the catheter further includes a second deployable structure disposed thereon and the method further includes deploying the second deployable member within the vessel.

38. (withdrawn) The method of claim 37, wherein the first deployable structure is deployed within the vessel at a point distal of the treatment site and the second deployable structure is deployed within the vessel at a point proximal of the treatment site.

39. (withdrawn) The method of claim 37, wherein the second deployable structure comprises a balloon assembly.

40. (withdrawn) The method of claim 37, wherein the second deployable structure comprises a filter assembly.

41. (original) An apparatus for treating a treatment site in a blood vessel, the apparatus comprising:

an elongated tubular member including a distal portion;

an first deployable structure connected to the distal portion of the tubular member, the first deployable member adapted to be deployed and engage the blood vessel at a position proximal or distal of the treatment site; and

a second deployable structure connected to the distal portion of the tubular member, the second deployable member adapted to be deployed adjacent the treatment site to create movement adjacent the treatment site.

42. (original) The apparatus of claim 41, wherein the first and second deployable structures are each individually selected from a balloon assembly, net assembly, basket assembly, filament assembly, paddle assembly, impeller assembly, or filter assembly.

43. (original) The apparatus of claim 41, wherein the first and second deployable structures are each individually selected from a balloon assembly, or a filter assembly.

44. (original) The apparatus of claim 41, wherein the elongated tubular member is adapted to extend within a cranial vessel, and the first and second deployable structures are adapted to be deployed in the cranial vessel.

45. (original) The apparatus of claim 41, wherein the apparatus comprises a balloon catheter having tubular body, and the first and second deployable structures are inflatable balloon assemblies mounted on the tubular body.

46. (original) The apparatus of claim 45, wherein the balloon catheter comprises one of an over-the-wire or a fixed wire balloon catheter.

47. (original) The apparatus of claim 45, wherein the body of the balloon catheter comprises a plurality of lumens disposed in a coaxial arrangement.

48. (original) The apparatus of claim 45, wherein the body of the balloon catheter comprises a plurality of lumens disposed in a side-by-side arrangement.

49. (original) The apparatus of claim 41, wherein the second deployable structure is adapted to be repeatedly deployed and un-deployed adjacent the treatment site.

50. (original) The apparatus of claim 41, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein, and the first and second balloon assemblies are mounted on the catheter body, the catheter further including an inner tubular member selectively movable within the lumen of the tubular body adapted to provide selective fluid communication between the lumen and selectively the first and second balloon assemblies, and wherein the first and second balloon assemblies comprise the first and second deployable structures.

51. (original) The apparatus of claim 41, wherein the catheter body further includes a port adapted for the delivery of a treatment material to the treatment site.

52. (original) The apparatus of claim 41, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein, the catheter including a balloon assembly having an inflatable member having a first portion having a first inflation pressure, and a second portion having a second inflation pressure less than the first inflation pressure, and the first deployable structure is the first portion of the inflatable member and the second deployable structure is the second portion of the inflatable member.

53. (original) The apparatus of claim 41, wherein the first deployable structure comprises an inflatable balloon assembly and the second deployable structure comprises a filter assembly.

54. (original) The apparatus of claim 41, wherein the first deployable structure comprises a filter assembly and the second deployable structure comprises an inflatable balloon assembly.

55. (original) The apparatus of claim 41, wherein the apparatus comprises a balloon catheter including an elongated tubular body defining at least one lumen therein and a balloon assembly mounted thereon, the apparatus further comprising an elongated core member including a distal portion having a filter assembly mounted thereon, the core member being slidably disposed within the lumen of the catheter, wherein the balloon assembly comprises the first deployable structure and the filter assembly comprises the second deployable structure.

56. (original) The apparatus of claim 55, wherein the elongated tubular body of the catheter includes a distal end, the filter assembly is adapted to in a first, non-expanded configuration when disposed within the lumen of the catheter proximal of the distal end during the insertion of the apparatus into the vessel, the filter assembly further adapted to deploy to a second, expanded configuration when it is advanced distally beyond the distal end of the tubular body of the catheter within the vessel.

57. (original) The apparatus of claim 41, wherein the first deployable structure is adapted to be deployed in a position within the vessel proximal of the treatment site.

58. (original) The apparatus of claim 41, wherein the first deployable structure is adapted to be deployed in a position within the vessel distal of the treatment site.

59. (original) The apparatus of claim 41, wherein the apparatus further includes a third deployable structure, and the first deployable structure is adapted to be deployed at a location proximal to the treatment site, and the third deployable structure is adapted to be deployed at a location distal to the treatment site.

60. (original) The apparatus of claim 59, wherein the first, second, and third deployable structures are each individually selected from a balloon assembly, a net assembly, a basket assembly, a filament assembly, a paddle assembly, an impeller assembly, or a filter assembly.

61. (original) The apparatus of claim 59, wherein the apparatus is a balloon catheter, and the first, second, and third deployable structures each comprise an inflatable balloon assembly.

62. (original) The apparatus of claim 59, wherein the apparatus is a balloon catheter, and the first and second deployable structures each comprise an inflatable balloon assembly, and the third deployable structure comprises a filter assembly.

63. (original) The apparatus of claim 59, wherein the apparatus is a balloon catheter, and the second deployable structures comprises an inflatable balloon assembly, and the third deployable structure comprises a filter assembly.

64. (original) The apparatus of claim 41, wherein the apparatus further includes a delivery catheter.

65. (withdrawn) An apparatus for treating a treatment site in a blood vessel, the apparatus comprising:

a catheter including an elongated tubular body having a body wall defining an outer surface and an inner lumen, the body wall including one or more openings defined therein extending from the lumen to the outer surface, the catheter adapted for insertion into the vessel such that at least one of the one or more openings is disposed adjacent the treatment site;

an elongated core member having a distal portion, and including a fluid moving structure attached to the distal portion, the elongated core member being adapted to be disposed within the lumen for selective movement within the lumen from a first position wherein the fluid moving structure does not extend through the one or more of the opening to a second position wherein the fluid moving structure does extend through the one or more of the opening; and

wherein the fluid moving structure is adapted to create movement of fluid adjacent the treatment site.

66. (withdrawn) The apparatus of claim 65, wherein the vessel is a cranial blood vessel, and the treatment site includes a blood clot, and wherein the apparatus is adapted to be inserted into the cranial vessel and the fluid moving structure is adapted to contact the blood clot when the elongated core member is in the second position.

67. (withdrawn) The apparatus of claim 65, wherein the fluid moving structure comprises one or more flexible filament attached to the core wire.

68. (withdrawn) The apparatus of claim 65, wherein the fluid moving structure comprises one or more flexible loop of filament attached to the core wire.

69. (withdrawn) The apparatus of claim 65, wherein the fluid moving structure comprises one or more flexible paddle structure attached to the core wire.

70. (withdrawn) The apparatus of claim 65, wherein the fluid moving structure comprises one or more impeller structure attached to the core wire.

71. (withdrawn) The apparatus of claim 65, wherein the catheter further includes a deployable structure disposed thereon that is adapted to be deployed within the vessel.

72. (withdrawn) The apparatus of claim 71, wherein the deployable structure is adapted to be deployed within the vessel at a point distal of the treatment site.

73. (withdrawn) The apparatus of claim 71, wherein the deployable structure is adapted to be deployed within the vessel at a point proximal of the treatment site.

74. (withdrawn) The apparatus of claim 71, wherein the deployable structure comprises a balloon assembly.

75. (withdrawn) The apparatus of claim 71, wherein the deployable structure comprises a filter assembly.

76. (withdrawn) The apparatus of claim 71, wherein the catheter further includes a second deployable structure disposed thereon adapted to be deployed within the vessel.

77. (withdrawn) The apparatus of claim 76, wherein the deployable structure is adapted to be deployed within the vessel at a location distal of the treatment site and the second deployable structure is adapted to be deployed within the vessel at a location proximal of the treatment site.

78. (withdrawn) The apparatus of claim 76, wherein the second deployable structure comprises a balloon assembly.

79. (withdrawn) The apparatus of claim 76, wherein the second deployable structure comprises a filter assembly.

80. (withdrawn) An apparatus for treating a blood clot in a cranial blood vessel, the apparatus comprising:

an elongated apparatus adapted for insertion into and navigation within the cranial blood vessel, the apparatus including means for delivering a clot dissolving drug to the blood clot and means for creating movement of the clot dissolving drug adjacent to the blood clot.

81. (withdrawn) A method for treating a blood clot in a cranial blood vessel, the method comprising:

providing an elongated apparatus adapted for insertion into and navigation within the cranial blood vessel, the apparatus including means for delivering a clot dissolving drug to the blood clot and means for creating movement of the clot dissolving drug adjacent to the blood clot;

delivering the drug to the clot; and

creating movement of the drug adjacent the clot.